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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,752	08/25/2003	Kei Kikuiri	241849US90	1259

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EXAMINER	
NEWAY, SAMUEL G	

ART UNIT	PAPER NUMBER
2626	

NOTIFICATION DATE	DELIVERY MODE
06/15/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/646,752	KIKUIRI ET AL.	
	Examiner	Art Unit	
	Samuel G. Neway	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/25/03, 11/18/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This is responsive to the Application filed 25 August 2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 – 3, 5 – 6, and 8 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al (USPN 5,224,167) in view of Sugiyama (USPN 5,166,686).

Claim 1:

Taniguchi discloses a coding device for coding an input signal, said coding device dividing the input signal into temporally continuous frames each including a predetermined number of discrete temporal samples (col. 2, lines 57-60).

However, Taniguchi does not explicitly disclose a dividing unit configured to divide each of the frames into one or more blocks, said dividing unit dividing each of the frames using a plurality of block combinations.

In a similar coding device, Sugiyama discloses dividing frames into blocks using a plurality of block combinations ("the input samples stored into the buffer are successively divided into a group of blocks of different lengths ... ", col. 2, lines 16-20).

It would have been obvious to one with ordinary skill in the art at the time of the invention to divide Taniguchi's frames into different sized blocks in order to improve coding by letting "block length N be as large as possible for signals of more stable nature, but as small as possible for signals of less stable nature" (Sugiyama, col. 1, lines 53-55).

Taniguchi further discloses

a coding unit configured to code each of the blocks at a plurality of bit rates and generate a plurality of block code sequences ("for every frame of the input speech signal to thereby generate coded speech signals having mutually different bit rates", col. 2, lines 57-60);

and a determination unit configured to select a frame code sequence corresponding to one of the block combinations so that the selected frame code sequence has optimum quality and that an average bit rate for coding the corresponding block combination is not higher than a predetermined bit rate (FIG. 2, items 4, 5, and related text), said determination unit selecting the frame code sequence by determining the block lengths of the respective blocks in the corresponding block combination and determining the bit rates for coding the respective blocks in the corresponding block combination ("the coder identification number which is transmitted", col. 6, lines 40-44. Note that Sugiyama attaches "a signal indicating the optimum block length" (Sugiyama, col. 2, lines 30-33)).

Claim 2:

Taniguchi and Sugiyama disclose the coding device as claimed in claim 1, Taniguchi further discloses:

a coding quality evaluation unit configured to determine data of quality of each of frame code sequences corresponding to the respective block combinations (FIG. 2, item 4 and related text); and

an output unit configured to output the selected frame code sequence ("the coder identification number which is transmitted", col. 6, lines 40-44).

Claim 3:

Taniguchi and Sugiyama disclose the coding device as claimed in claim 2, Taniguchi further discloses wherein the coding quality evaluation unit calculates a sum of data of quality of the block code sequence corresponding to one of the blocks to be coded and the data of quality of the block code sequences corresponding to blocks prior to the one of the blocks to be coded; and the determination unit uses the sum of the data of quality in determination of the block lengths and the bit rates (FIG. 2, items 4, 5, and related text).

Claim 5:

Taniguchi and Sugiyama disclose the coding device as claimed in claim 2, Taniguchi further discloses wherein the data of quality includes an electric power of a difference between a signal obtained by decoding one of the frame code sequences and a corresponding portion in the input signal; and the determined block lengths and the bit rates make the electric power of the difference substantially a minimum (FIG. 2, items 4, 5, and related text).

Claim 6:

Taniguchi and Sugiyama disclose the coding device as claimed in claim 2, Taniguchi further discloses wherein the data of quality includes a signal-to-noise-ratio of a signal obtained by decoding one of the frame code sequences; and the determined block lengths and the bit rates make the signal-to-noise-ratio substantially a maximum (FIG. 2, items 4, 5, and related, see also col. 6, lines 57-63).

Claim 8:

Taniguchi and Sugiyama disclose the coding device as claimed in claim 2, Taniguchi further discloses wherein the output unit appends data of the block lengths and the bit rates to the selected frame code sequence ("the coder identification number which is transmitted", col. 6, lines 40-44).

Claim 9:

Taniguchi and Sugiyama disclose the coding device as claimed in claim 8, Taniguchi further discloses wherein the output unit appends the data of the block lengths and the bit rates to the corresponding block code sequences in the selected frame code sequence, respectively ("the coder identification number which is transmitted", col. 6, lines 40-44).

Claim 10:

Taniguchi discloses a decoding device for decoding an input code sequence obtained by coding an input signal, said input signal being divided into temporally continuous frames each including a predetermined number of discrete temporal samples (FIG. 1, items 20, 30, and related text).

However, Taniguchi does not explicitly disclose a dividing unit configured to divide each of the frames into one or more blocks, said dividing unit dividing each of the frames using a plurality of block combinations.

In a similar coding device, Sugiyama discloses dividing frames into blocks using a plurality of block combinations ("the input samples stored into the buffer are successively divided into a group of blocks of different lengths ... ", col. 2, lines 16-20).

It would have been obvious to one with ordinary skill in the art at the time of the invention to divide Taniguchi's frames into different sized blocks in order to improve coding by letting "block length N be as large as possible for signals of more stable nature, but as small as possible for signals of less stable nature" (Sugiyama, col. 1, lines 53-55).

Taniguchi further discloses

an information extracting unit configured to extract data of block lengths of the respective blocks, and data of bit rates for coding the respective blocks from the input code sequence (FIG. 1, items 20, 30, and related text); and

a decoding unit configured to decode the input code sequence according to the extracted data of the block lengths and the data of the bit rates (FIG. 1, items 20, 30, and related text).

Claim 11:

Taniguchi and Sugiyama disclose the decoding device as claimed in claim 10, Taniguchi further discloses wherein the data of the block lengths and the data of the bit

rates are appended to the input code sequence ("the coder identification number which is transmitted", col. 6, lines 40-44).

Claim 12:

Taniguchi and Sugiyama disclose the decoding device as claimed in claim 11, Taniguchi further discloses wherein the input code sequence includes one or more block code sequences obtained by coding the respective blocks ("for every frame of the input speech signal to thereby generate coded speech signals ... ", col. 2, lines 57-60); and the data of the block lengths and the data of the bit rates are appended to the block code sequences, respectively ("the coder identification number which is transmitted", col. 6, lines 40-44. Note that Sugiyama attaches "a signal indicating the optimum block length" (Sugiyama, col. 2, lines 30-33)).

Claims 13 – 14:

Claims 13 – 14 are similar in scope and content to claims 1 – 2 and are rejected with the same rationale.

Claim 15:

Claim 15 is similar in scope and content to claims 10 and is rejected with the same rationale.

4. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al (USPN 5,224,167) in view of Sugiyama (USPN 5,166,686) and in further view of Kolesnick et al (USPN 6,263,312).

Claim 4:

Taniguchi and Sugiyama disclose the coding device as claimed in claim 2, but they do not explicitly disclose wherein the determination unit determines the block lengths and the bit rates using the Viterbi algorithm.

Kolesnick discloses a similar coding device where a trellis code, processed by a Viterbi algorithm, is used in order to select the best codeword that approximates an input wherein any path through the trellis diagram represents a codeword (FIG. 5 and related text).

It would have been obvious to one with ordinary skill in the art at the time of the invention to use the Viterbi algorithm to select the best bit rate and block length (similar to Kolesnick's best path) in Taniguchi's and Sugiyama's device because the Viterbi algorithm allows for the selection of the best path without considering every path (Kolesnick, col. 8, lines 13-16).

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al (USPN 5,224,167) in view of Sugiyama (USPN 5,166,686) and in further view of Admitted Prior Art.

Claim 7:

Taniguchi and Sugiyama disclose the coding device as claimed in claim 2, but they do not explicitly disclose wherein a weighting factor determined by human perceiving characteristics is applied to the data of quality.

However, Applicant discloses the well known method of perceptual coding as Prior Art (page 2, lines 12-25).

It would have been obvious to one with ordinary skill in the art at the time of the invention to use perceptual coding in Taniguchi's and Sugiyama's device in order to lower bit rate.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Gersho et al (USPN 6,233,550) discloses a speech coder wherein a speech signal is partitioned in frames and subframes that are coded differently depending on a plurality of category to which the frames and subframes belong.

b. Kleider et al (USPN 6,496,794) discloses a multi-rate speech coder.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel G. Neway whose telephone number is 571-270-1058. The examiner can normally be reached on Monday - Friday 8:30AM - 5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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